

Amendments to the Claims

1. (Currently Amended) A liquid crystal display device having a surface radiation conversion element for converting an electromagnetic wave, which is radiated from a radiation source, to surface radiation, characterized in that an element body has a generally plate shape constituted with a material having a larger electric permittivity than air outside said element body and, in the inside of the element body, a plurality of recesses formed in one surface of said element body form completely closed spaces of substantially uniform size on said one surface ~~and are disposed~~ whose electric permittivity is smaller than that of the material constituting the element body and whose surfaces opposite to a radiation surface are generally flat, wherein a number of said completely closed spaces near an edge of the element body near the radiation source is of greater density than the density of said completely closed spaces in a central portion of the element body.

2. (Currently Amended) The ~~surface radiation conversion element~~ liquid crystal display device according to claim 1, characterized in that a plurality of said completely closed spaces are disposed whose surfaces opposite to said radiation surface are generally parallel to the radiation surface.

3. (Currently Amended) The ~~surface radiation conversion element~~ liquid crystal display device according to claim 1, characterized in that a plurality of said completely closed spaces are adjacently disposed whose surfaces opposite to said radiation surface are generally parallel to each other.

4. (Currently Amended) The ~~surface radiation conversion element~~ liquid crystal display device according to claim 1, characterized in that a first member having a radiation source disposed on a side thereof and a second member disposed on the radiation surface side are constituted to be bonded together in close adhesion, and said completely closed spaces are formed between said first member and said second member by the adhesion of faces of said first and second member.

5. (Currently Amended) The ~~surface-radiation-conversion element~~liquid crystal display device according to claim 4, characterized in that at least one member of said first member and said second member has recesses formed therein, and said recesses are disposed to constitute said completely closed spaces by joining faces of said first member and said second member.

6. (Currently Amended) The ~~surface-radiation-conversion element~~liquid crystal display device according to claim 1, characterized in that a total reflection restraining layer such as a scattering layer is disposed in the radiation surface.

7. (Currently Amended) The ~~surface-radiation-conversion element~~liquid crystal display device according to claim 1, characterized in that said completely closed spaces are filled with solid layers having a smaller electric permittivity than the material constituting the element body.

8. (Currently Amended) A liquid crystal display device having a surface radiation conversion element, characterized in that an element body of the surface radiation conversion element has a generally plate shape constituted with a material having a larger electric permittivity than air outside said element body and, in the inside of the element body, a plurality of recesses formed in one surface of said element body form completely closed spaces on said one surface and are disposed whose electric permittivity is smaller than that of the material constituting the element body and whose surfaces opposite to a radiation surface are generally flat, wherein a number of said completely closed spaces near an edge of the element body near a radiation source is of a greater density than the density of said completely closed spaces in a central portion of the element body.

9. (Previously Presented) The liquid crystal display device according to claim 8, characterized in that a plurality of said completely closed spaces are disposed whose surfaces opposite to said radiation surface are generally parallel to the radiation surface.

10. (Previously Presented) The liquid crystal display device according to claim 8, characterized in that a plurality of said completely closed spaces are adjacently disposed whose surfaces opposite to said radiation surface are generally parallel to each other.

11. (Previously Presented) The liquid crystal display device according to claim 8, characterized in that a first member having a radiation source disposed on a side thereof and a second member disposed on the radiation surface side are constituted to be bonded together in close adhesion, and said completely closed spaces are formed between said first member and said second member.

12. (Previously Presented) The liquid crystal display device according to claim 8, characterized in that at least one member of said first member and said second member has recesses formed therein, and said recesses are disposed to constitute said completely closed spaces by joining faces of the first member and the second member.

13. (Original) The liquid crystal display device according to claim 12, characterized in that a total reflection restraining layer such as a scattering layer is disposed in the radiation surface.

14. (Previously Presented) The liquid crystal display device according to claim 8, characterized in that said completely closed spaces are filled with solid layers having a smaller electric permittivity than the material constituting the element body.

15. (Cancelled)

16. (Previously Presented) The method of producing a surface radiation conversion element according to claim 20, characterized in that

said first member is constituted with a plate material such as an acrylic light guide,

said second member is constituted with a sheet member such as a diffusion sheet

containing polycarbonate as a principal material, and
said first member and said second member are joined by adhesion.

17. (Previously Presented) The method of producing a surface radiation conversion element according to claim 20, characterized in that said recesses are formed in one member of the first member and the second member, and a joining surface of the other member to which the one member having said recesses formed therein is joined is formed to be generally coplanar.

18. (Previously Presented) The method of producing a surface radiation conversion element according to claim 20, characterized in that a total reflection restraining layer such as a diffusion layer is formed in said first member or said second member in a surface opposite to the joining surface.

19. (Cancelled)

20. (Currently Amended) A method of producing a surface radiation conversion element of a liquid crystal display device for converting electromagnetic radiation from a radiation source to surface radiation, comprising the steps of:

providing a first member having a first electric permittivity and a second member having a second permittivity generally equal to the first electric permittivity, wherein a plurality of recesses of substantially uniform size are formed in a surface of at least one of the first member and the second member, the density of a number of said recesses near an edge of the element body near the radiation source being greater than the density of a number of recesses in a central portion of the element body; and

connecting the surface of the second member to the surface of the first member to completely close the recesses;

whereby the recesses have a smaller electric permittivity than the first electric permittivity and the second electric permittivity.

21. (Previously Presented) The method of claim 20 including the additional step of filling the recesses with a solid material having an electric permittivity less than the first electric permittivity.

22. (Previously Presented) The method of claim 20 including the additional step of filling the recesses with a gas having an electric permittivity less than the first electric permittivity.

23. (Previously Presented) The liquid crystal display device according to claim 1, characterized in that a first member having a radiation source disposed on a side thereof and a second member disposed on a radiation surface of the first member are constituted to be in close adhesion, the second member including a planar surface having a plurality of openings therein, wherein face contact between the second member planar surface and the first member completely closes the spaces in the second member.

24. (Previously Presented) The liquid crystal display device according to claim 8, characterized in that a first member having a radiation source disposed on a side thereof and a second member disposed on a radiation surface of the first member are constituted to be in close adhesion, the second member including a planar surface having a plurality of openings therein, wherein face contact between the second member planar surface and the first member completely closes the spaces in the second member.

25. (Currently Amended) A liquid crystal display device having a surface radiation conversion element for converting an electromagnetic wave, which is radiated from a radiation source, to surface radiation, comprising an element body having a generally plate shape constituted with a material having a larger electric permittivity than air outside said element body and, in the inside of the element body, a plurality of completely closed spaces are disposed, the electric permittivity of said completely closed spaces being smaller than the electrical permittivity of the material constituting the element body, and a number of the completely closed spaces near an edge of the element body near the radiation source being of a greater density than

in a central portion of the element body,

wherein said element body comprises a first member having a first side facing a radiation source and a planar second side and a second member having a planar side having a plurality of openings formed in said second member planar side and having generally flat bottoms, said second member planar side being directly mounted on said first member planar side with portions of said second member planar side in face contact with said first member planar second side thereby completely closing said plurality of openings.

26. (Currently Amended) A liquid crystal display device having a surface radiation conversion element for converting electromagnetic wave, which is radiated from a radiation source, to surface radiation, comprising an element body having a generally plate shape constituted with a material having a larger electric permittivity than air outside said element body and, in the inside of the element body, a plurality of completely closed spaces are disposed whose electric permittivity is smaller than that of the material constituting the element body and whose surfaces opposite to a radiation surface are generally flat, the element body comprising a first member having a radiation source disposed on a side thereof and a second member disposed on the radiation surface side in close adhesion with the first member, said completely closed spaces being formed from recesses formed in the flat surfaces in both said first member and in said second member by the close adhesion of the first member and the second member flat surfaces.

27. (Currently Amended) The ~~surface radiation~~liquid crystal display device of claim 26 wherein at least some of said completely closed spaces in said first member are aligned with at least some of the completely closed spaces in said second member.

28. (Currently Amended) The ~~surface radiation~~liquid crystal display device of claim 26 wherein at least some of said completely closed spaces in said second member partially overlap at least some of said completely closed spaces in said first member.

29. (Currently Amended) The ~~surface-radiation~~liquid crystal display device of claim 26 wherein at least some of said completely closed spaces in said second member are offset from all completely closed spaces in said first member.

30. (Currently Amended) The ~~surface-radiation-conversion-element~~liquid crystal display device according to claim 26, wherein a plurality of the completely closed spaces include surfaces opposite to said radiation surface that are generally parallel to the radiation surface.

31. (Currently Amended) The ~~surface-radiation-conversion-element~~liquid crystal display device according to claim 26, wherein a plurality of the completely closed spaces include surfaces opposite to said radiation surface that are generally parallel to each other.

32. (Currently Amended) A liquid crystal display device having a surface radiation conversion element, wherein an element body of the surface radiation conversion element has a generally plate shape constituted with a material having a larger electric permittivity than air outside said element body and, in the inside of the element body, a plurality of completely closed spaces are disposed whose electric permittivity is smaller than that of the material constituting the element body and whose surfaces opposite to a radiation surface are generally flat, the element body comprising a first member having a radiation source disposed on a side thereof and a second member disposed on the radiation surface side in close adhesion with the first member, said completely closed spaces being formed from recesses formed in flat surfaces of both in said first member and in said second member by the close adhesion of the first and the second member flat surfaces.

33. (Currently Amended) The ~~surface-radiation~~liquid crystal display device of claim 32 wherein at least some of said completely closed spaces in said first member are aligned with at least some of the completely closed spaces in said second member.

34. (Currently Amended) The ~~surface radiation~~liquid crystal display device of claim 32 wherein at least some of said completely closed spaces in said second member partially overlap at least some of said completely closed spaces in said first member.

35. (Currently Amended) The ~~surface radiation~~liquid crystal display device of claim 32 wherein at least some of said completely closed spaces in said second member are offset from all completely closed spaces in said first member.

36. (Currently Amended) The ~~surface radiation conversion element~~liquid crystal display device according to claim 32, wherein a plurality of the completely closed spaces include surfaces opposite to said radiation surface that are generally parallel to the radiation surface.

37. (Currently Amended) The ~~surface radiation conversion element~~liquid crystal display device according to claim 32, wherein a plurality of the completely closed spaces include surfaces opposite to said radiation surface that are generally parallel to each other.

38. (Currently Amended) A method of producing a liquid crystal display device having a surface radiation conversion element for converting electromagnetic radiation from a radiation source to surface radiation, comprising the steps of:

providing a first member having a first electric permittivity and a second member having a second permittivity generally equal to the first electric permittivity, wherein a plurality of recesses are formed both in a surface of the first member and in a surface of the second member; and

connecting the surface of the second member directly to the surface of the first member to completely close the recesses in the first member and the recesses in the second member to form closed spaces;

whereby the recesses have a smaller electric permittivity than the first electric permittivity and the second electric permittivity.

39. (Previously Presented) The method of claim 38 wherein said step of connecting the second member to the first member comprises the step of aligning at least some of the recesses in the first member with at least some of the recesses in the second member.

40. (Previously Presented) The method of claim 38 wherein said step of connecting the second member to the first member comprises the step of overlapping at least some of the recesses in the first member with at least some of the recesses in the second member.

41. (Previously Presented) The method of claim 38 wherein said step of connecting the second member to the first member comprises the step of aligning at least some of the recesses in the first member with an area of the second member having no recesses.